



UNITED STATES DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/384,855	08/27/99	HILL	0202/US

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6 APOLLO CIRCLE
LEXINGHAM MA 02421-7025

MM42/0303

EXAMINER

NATIVIDAD P

ART UNIT

PAPER NUMBER

2877

DATE MAILED:

03/03/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/384,855

Applicant(s)

HILL ET AL.

Examiner

Phil S. Natividad

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30,33,35-44 and 49-52 is/are rejected.
- 7) ☒ Claim(s) 31,32,34,45-48,53 and 54 is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892) 17) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 18) ☐ Notice of Informal Patent Application (PTO-152)
- 16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 19) ☐ Other: ____

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DETAILED ACTION

Specification

1. Page 1 lines 6-7 should be updated to replace the words "(Attorney Docket No. 0200/US)" with "--09/384,609--".

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 20-26, 28, 29, and 36-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims recite the limitation "retroreflector" which does not have proper antecedent basis in parent claim 5. It is indefinite whether the scope is intended to encompass a generic "optical system" or the more specific "retroreflector".

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-4 and 6-8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Slotwinski et al. (,251). (Fig. 2 and column 1 lines 10-11)
6. Claim 49 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ai et al. (,112). (Fig. 9)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 20-22, 25, 27, 30, 33, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slotwinski et al. in view of Reeder (,986). As applied to claim 1 above, Slotwinski et al. disclose a polarization interferometer using a fiber as the polarization-preserving optical system, but without expressly disclosing changes in input/output direction. However, Slotwinski et al. disclose prior art (column 3 lines 25-55) polarization interferometry with a disadvantage of reflectors needing very close optical alignment. Reeder discloses a polarization-preserving retroreflector (Fig. 2) that would obviate such a disadvantage. It would have been obvious to one of ordinary skill in the art to use the teaching of Reeder in a known prior-art polarization interferometer to obtain applicant's invention as claimed, the motivation for

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which would have been to avoid needing "very close optical alignment" (Slotwinski et al. column 3 lines 55-57).

As to claims 22 and 25, it is obvious and known in the art that separate prisms (Reeder column 7 lines 63-64) with surfaces in optical contact are functionally equivalent to a monolithic prism. As to claim 36, rearrangement of the same prisms would have been an obvious functionally equivalent design choice.

9. Claims 9-19 and 50-52 are rejected under 35 U.S.C. 103(a) as being obvious over Reeder. As applied above, Reeder discloses a polarization-preserving retroreflector, and it would have been obvious to use such a retroreflector at the ends of known or obvious configurations of two-arm interferometers.

10. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Slotwinski et al. in view of Reeder, further in view of Lehmann et al. (,864). As applied to claim 5 above, a polarization-preserving interferometer would have been obvious, except for the claimed limitation of preselected angles. Lehmann et al. disclose teaching of preselected angles for retroreflectors; and it would have been well-known and obvious to one of ordinary skill to take advantage of the polarizing properties of Brewster's angle as a design choice in the above-applied obvious combination.

11. Claims 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reeder as applied to claim 5 above, and further in view of Rando (,476). Polarization interferometers are well known in the art, and it would have been obvious to combine them with the teachings of Reeder as applied above. The further limitations of oppositely-tilted plates to reduce ghosts are

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taught by Rando (by optimizing transmittance at Brewster's angle, column 2 lines 40-44). It would have been obvious to one of ordinary skill in the art to combine the teaching of Rando with that of Reeder and the prior art, the motivation for which would have been to optimize transmittance and minimize ghosting.

Conclusion

12. Claims 31-32, 34, 45-48, and 53-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

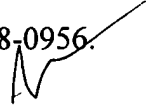
13. Claims 28, 29, and 37-41 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phil S. Natividad whose telephone number is 703-306-5944. The examiner can normally be reached on Monday-Thursday and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


ROBERT H. KIM
PRIMARY EXAMINER

Phil S. Natividad
Patent Examiner
psn
February 23, 2000

FRANK G. FONT
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